

# Ethical principles for artificial intelligence in education

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## Abstract

The advancement of artificial intelligence in education (AIED) has the potential to transform the educational landscape and influence the role of all involved stakeholders. In recent years, the applications of AIED have been gradually adopted to progress our understanding of students' learning and enhance learning performance and experience. However, the adoption of AIED has led to increasing ethical risks and concerns regarding several aspects such as personal data and learner autonomy. Despite the recent announcement of guidelines for ethical and trustworthy AIED, the debate revolves around the key principles underpinning ethical AIED. This paper aims to explore whether there is a global consensus on ethical AIED by mapping and analyzing international organizations' current policies and guidelines. In this paper, we first introduce the opportunities offered by AI in education and potential ethical issues. Then, thematic analysis was conducted to conceptualize and establish a set of ethical principles by examining and synthesizing relevant ethical policies and guidelines for AIED. We discuss each principle and associated implications for relevant educational stakeholders, including students, teachers, technology developers, policymakers, and institutional decision-makers. The proposed set of ethical principles is expected to serve as a framework to inform and guide educational stakeholders in the development and deployment of ethical and trustworthy AIED as well as catalyze future development of related impact studies in the field.